THINGS WE ALL KNOW

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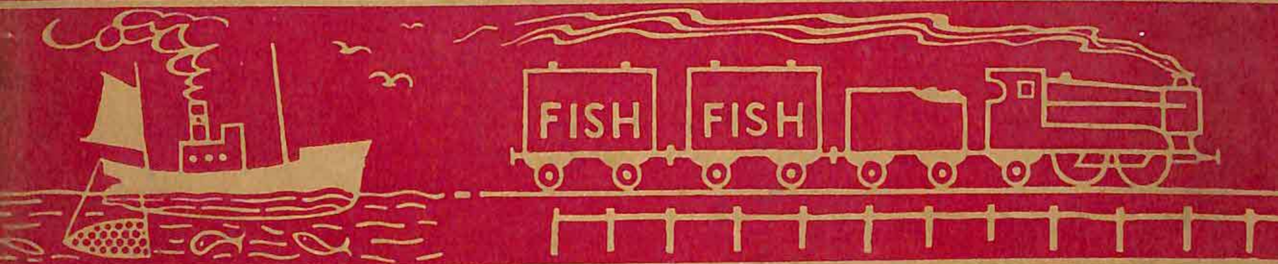
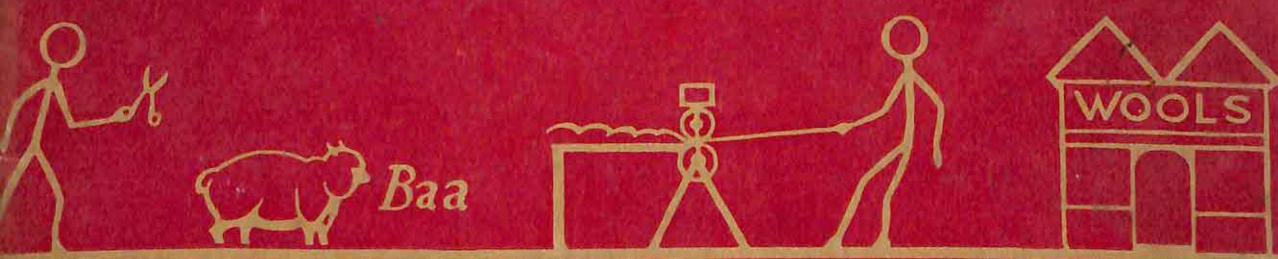
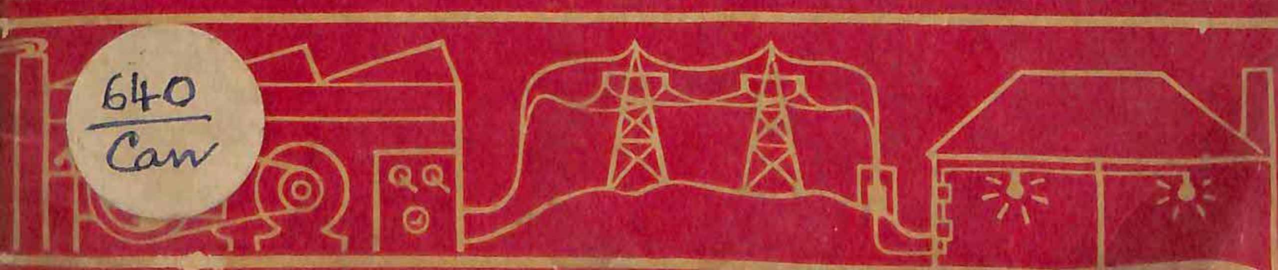




BOOK I

by R. J. CANDY



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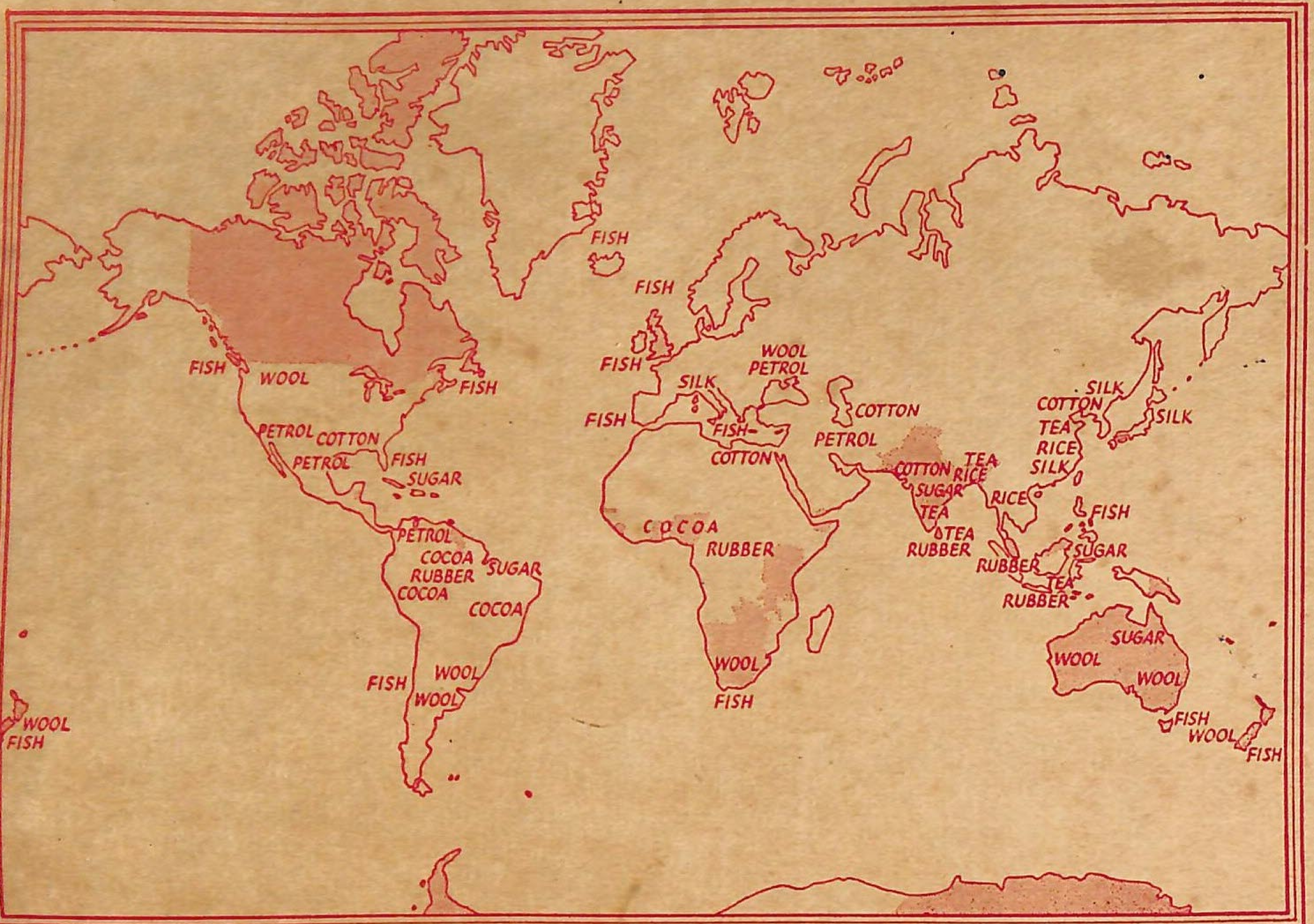

This map shows you where the different commodities mentioned in the book come from. The Commonwealth countries are shaded.

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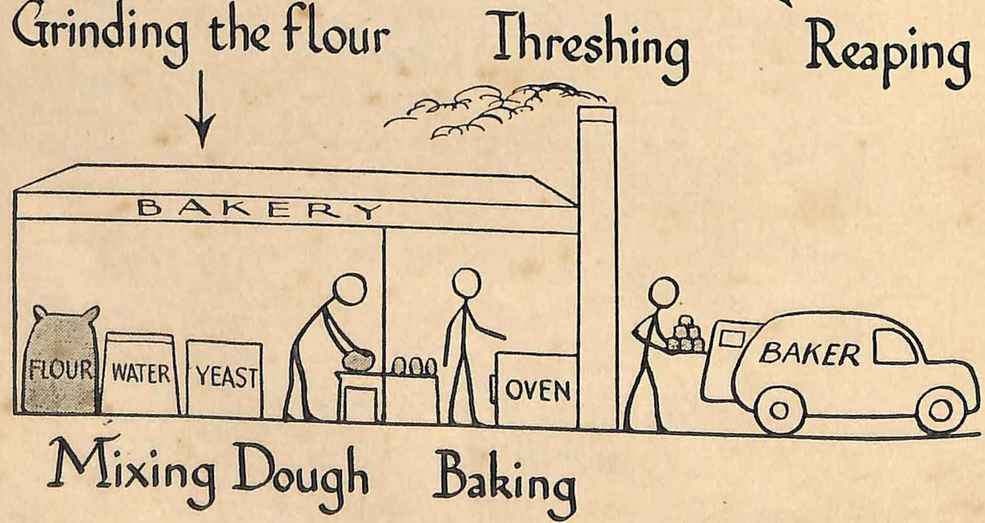
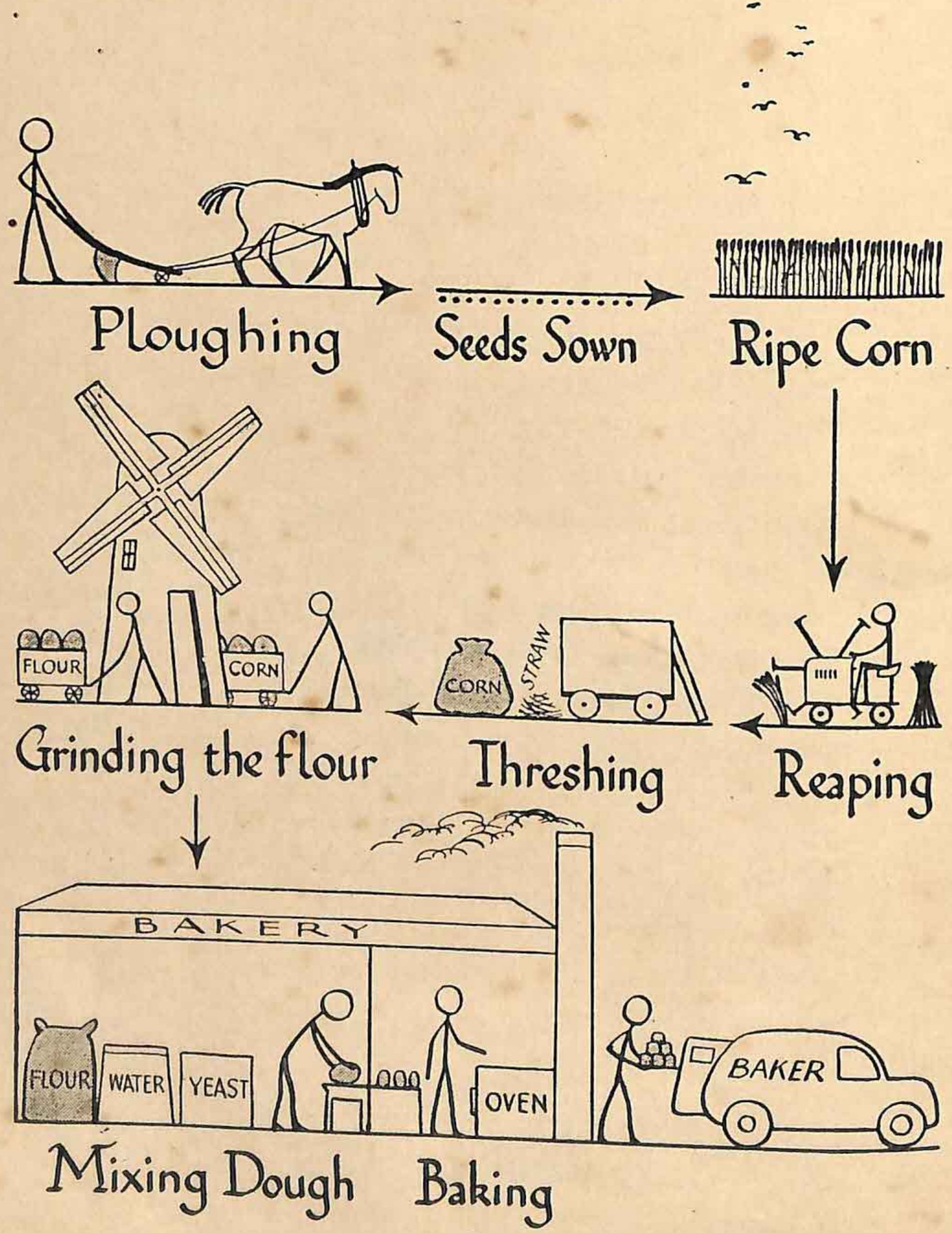
LONDON
MACMILLAN & CO LTD
NEW YORK · ST MARTIN'S PRESS
1956


Grinding the flour
Threshing
Reaping
BAKERY
FLOUR
WATER
YEAST
OVEN
BAKER
Mixing Dough
Baking

1. From Field to Bakery



1. FROM FIELD TO BAKERY

During the winter months the farmer ploughs his fields ready for planting. In the spring he goes round the fields sowing the wheat carefully. The seed grows and grows until by June there is a field of green waving corn. The hot summer sun ripens it, and by August it is ready to be cut.

Out come the farmer and his men with their reaping machine, which cuts the corn and ties it into bundles, called sheaves. Perhaps these sheaves may be made into a stack until the farmer is ready to thresh or until the weather is fine enough. The threshing machine picks up the sheaves, smacks each ear of corn so that all the grains fall out into a sack and then makes a neat pile of the straw that is left. It is usually worked by a tractor that stands beside it. Off go the sacks of corn to the miller, who grinds them in his mill until they are turned into soft white flour. At one time nearly all the flour was ground in windmills, but now there are only a few left and most mills are driven by electricity.

The flour goes to the bakery, where it is mixed with water and yeast and churned into great heaps of dough. The dough is put into baking tins that are slid into a huge oven to bake. The baking is done at night so that the bread is ready for the baker in the morning.

Collect pictures of a wheat field ; a plough ; a reaping machine ; a tractor ; a threshing machine ; a windmill ; a water mill.

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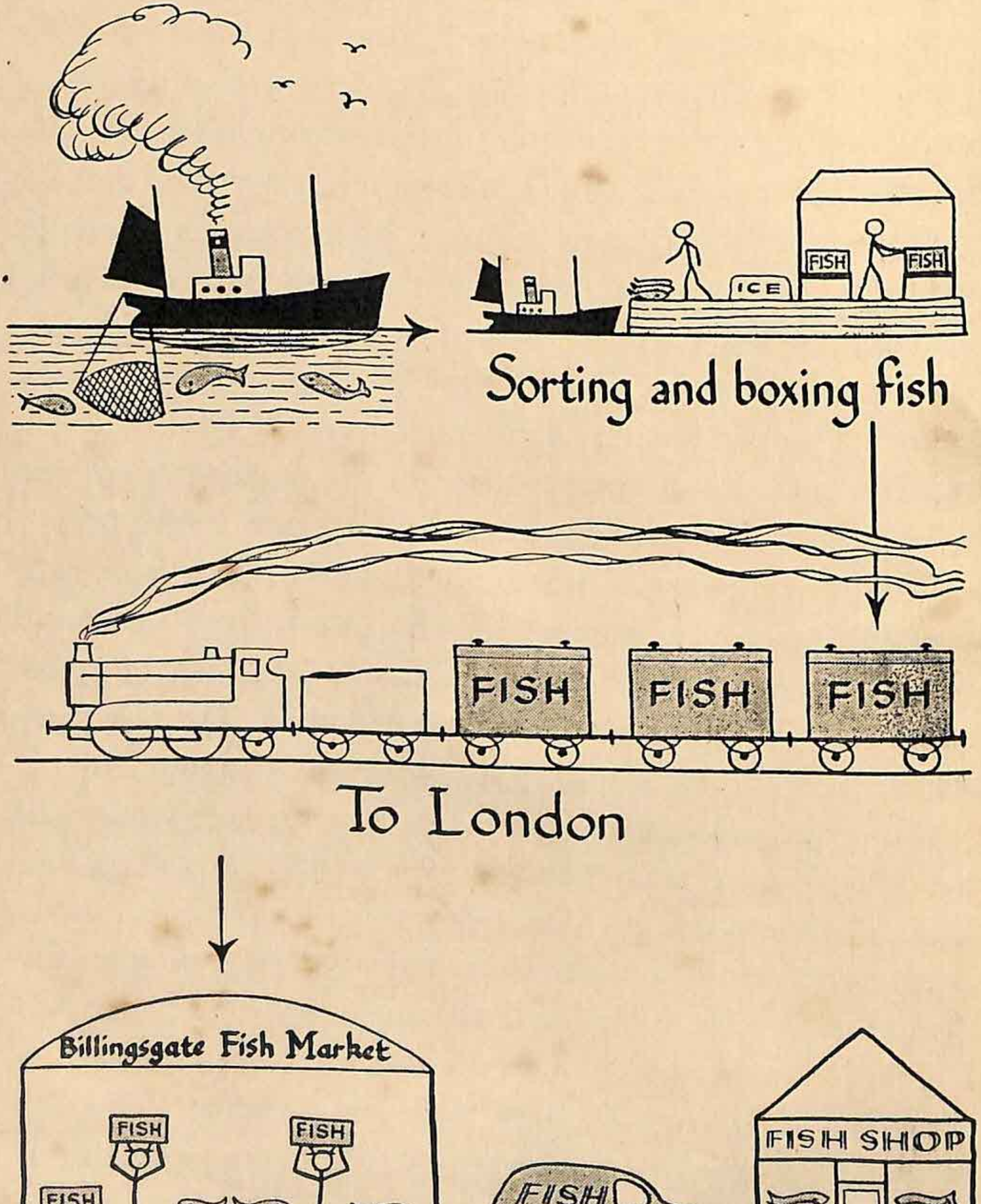
2. From Sea to Fish Shop



2. FROM SEA TO FISH SHOP

When you go to the seaside, do you ever try to catch fish? Every night fishing boats called drifters and trawlers go out with huge nets to catch thousands of fish. The nets are let down into the sea and come up full of shining, struggling fish of all sorts. The fish are emptied into the hold of the ship with lumps of ice to keep them fresh, and when the ship is full it comes home to port as quickly as possible.

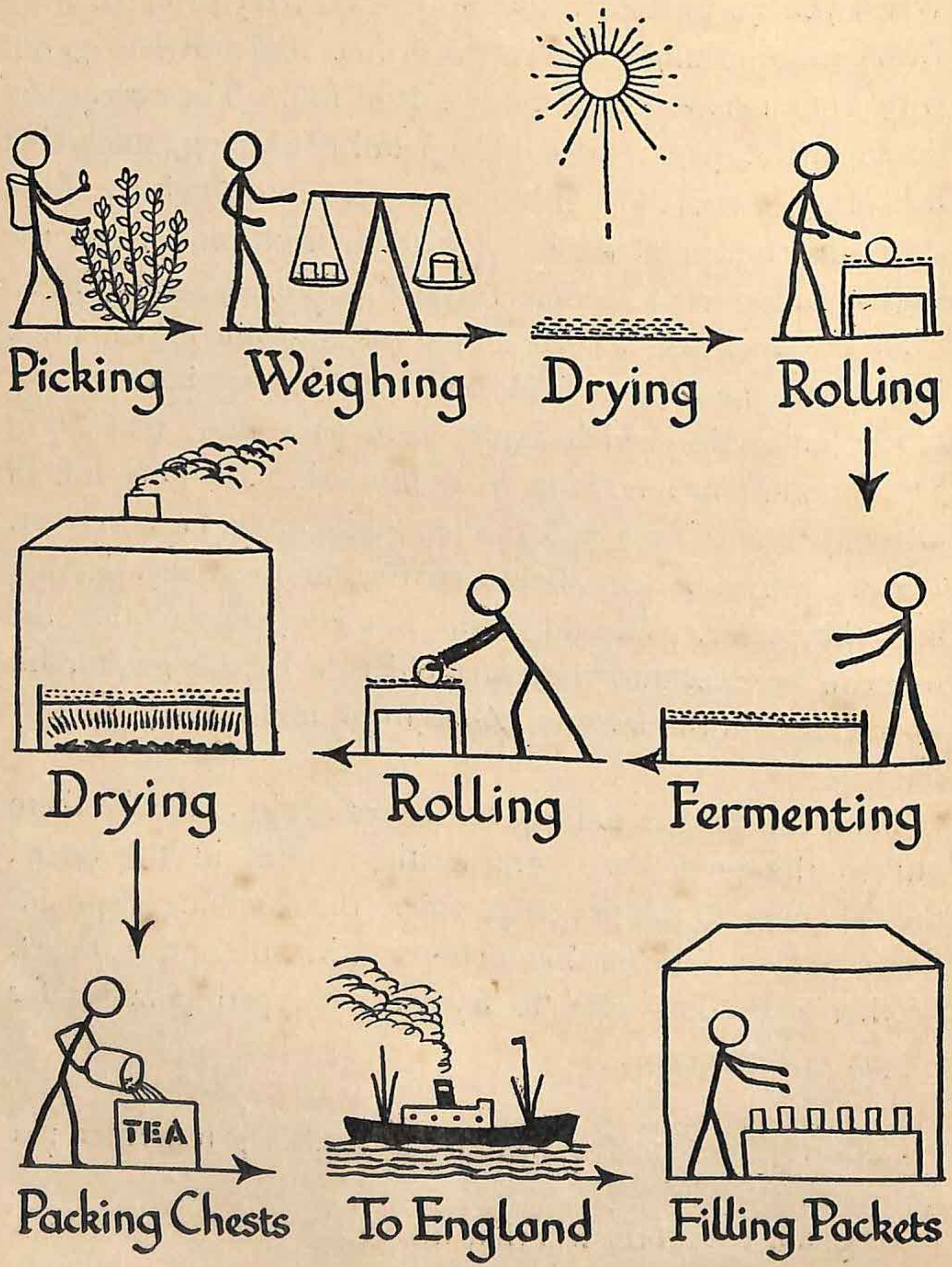
At the dock the fish are sorted out and put into wooden boxes with more ice. The boxes are loaded into railway trucks or lorries which bring them to a huge market in London that has nothing in it but fish. Imagine fish of all shapes and sizes laid out in Billingsgate Fish Market. Porters hurry in with boxes resting on the queer leather hats they wear. The lid of the box is opened so that the fish can be seen and they are sold to a fishmonger for his own shop. Fishmongers come from miles away to buy the fish.

Then the porters nail up the boxes again and take them out to the lorries that are waiting. Still in the boxes, the fish come to the fish shop, where the fishmonger spreads them out on his marble counter with the price ticket. Mother may buy some to fry with chipped potatoes for supper or dinner.

Collect pictures of a drifter; a trawler; fishermen; a fish market.

Make a list of all the fish that we eat.

3. From Plantation to Tea Pot



3. FROM PLANTATION TO TEA POT

There are many plants of which we *eat* the leaves, but tea is one of the few that we use for a drink. The tea plant is evergreen and likes growing on the side of a hill. You may know three places that grow tea, for you can see their names on the outsides of packets. They are India, Ceylon and China.

When the leaves are picked the pickers choose only leaves from the top of the plant, for these are the youngest. The leaves are put into a basket which the picker carries to be weighed, for he is paid for the weight he picks. The leaves are then spread out to dry and are left for a day and a night. After that they are put through heavy rollers that squeeze out the juice and squash the veins of the leaf.

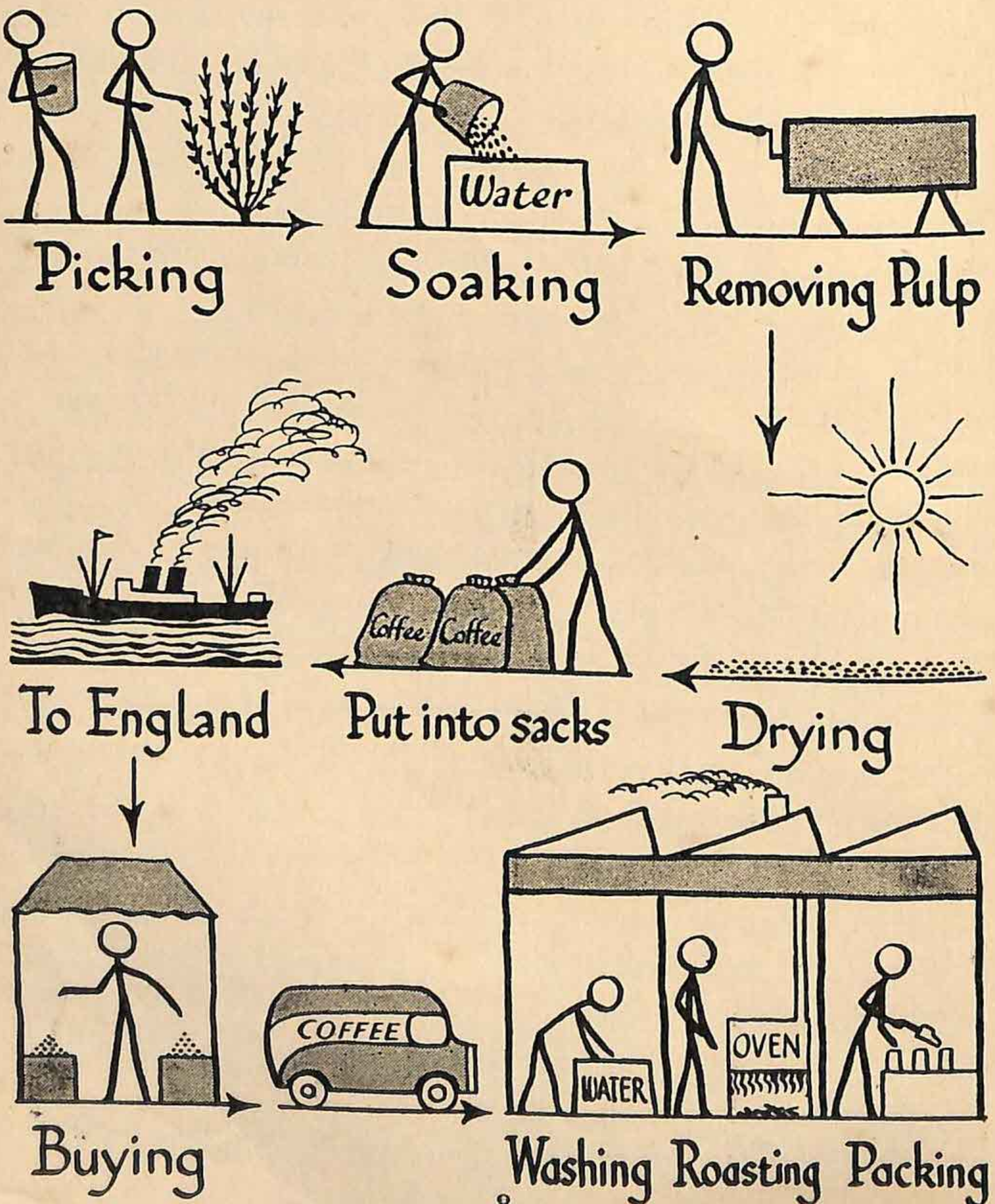
Once more they are spread out, this time on trays to ferment. Then they are rolled again and dried by being carefully heated. Most packets of tea do not contain any of the stalks or any dust. The leaves have been sifted to remove all this. Then they are packed in the wooden tea chests that you may perhaps have seen for sale as firewood. The chest is lined with a thin sheet of lead to keep out any damp that would spoil the tea.

These chests of tea are sent to England, where many kinds of tea are mixed together before the paper packets are filled and sealed down.

Collect pictures of a tea plant ; a tea plantation.

Collect as many tea labels as you can.

4. From Plantation to Coffee Pot



4. FROM PLANTATION TO COFFEE POT

You like eating cherries, but you would not like a coffee cherry. The fruit of the coffee tree, when ripe, looks like a red cherry. On the plant there are flowers and green and ripe fruit at the same time.

When the fruit is ripe it is picked and put into tubs of water to soak for a day. Unlike a cherry, it is the two small berries inside that are used and not the fruit. After soaking, the outside is removed in a pulping machine that tears it off. The berries are then spread out in the sun to dry. Each berry has a thick cover on it to protect it. This is taken off and the berries are put into sacks and sent to England. When they arrive in England the sacks are examined by men who are buying them. They even make small cups of coffee to see what it will taste like.

From the docks the coffee comes to the factory where it is cleaned and washed. Often many different sorts of coffee are mixed to give it a good flavour.

The coffee has next to be roasted and this is done in a revolving iron cage, up which roars a gas flame. Although the berries are properly roasted, none of them is ever burnt.

The coffee is now ground up in a mill and put into tins or packets that are quickly sealed up to keep the coffee fresh. All that remains is to send the coffee to the shops.

Collect pictures of a coffee plant ; a coffee plantation.
Collect labels from coffee tins and bottles.

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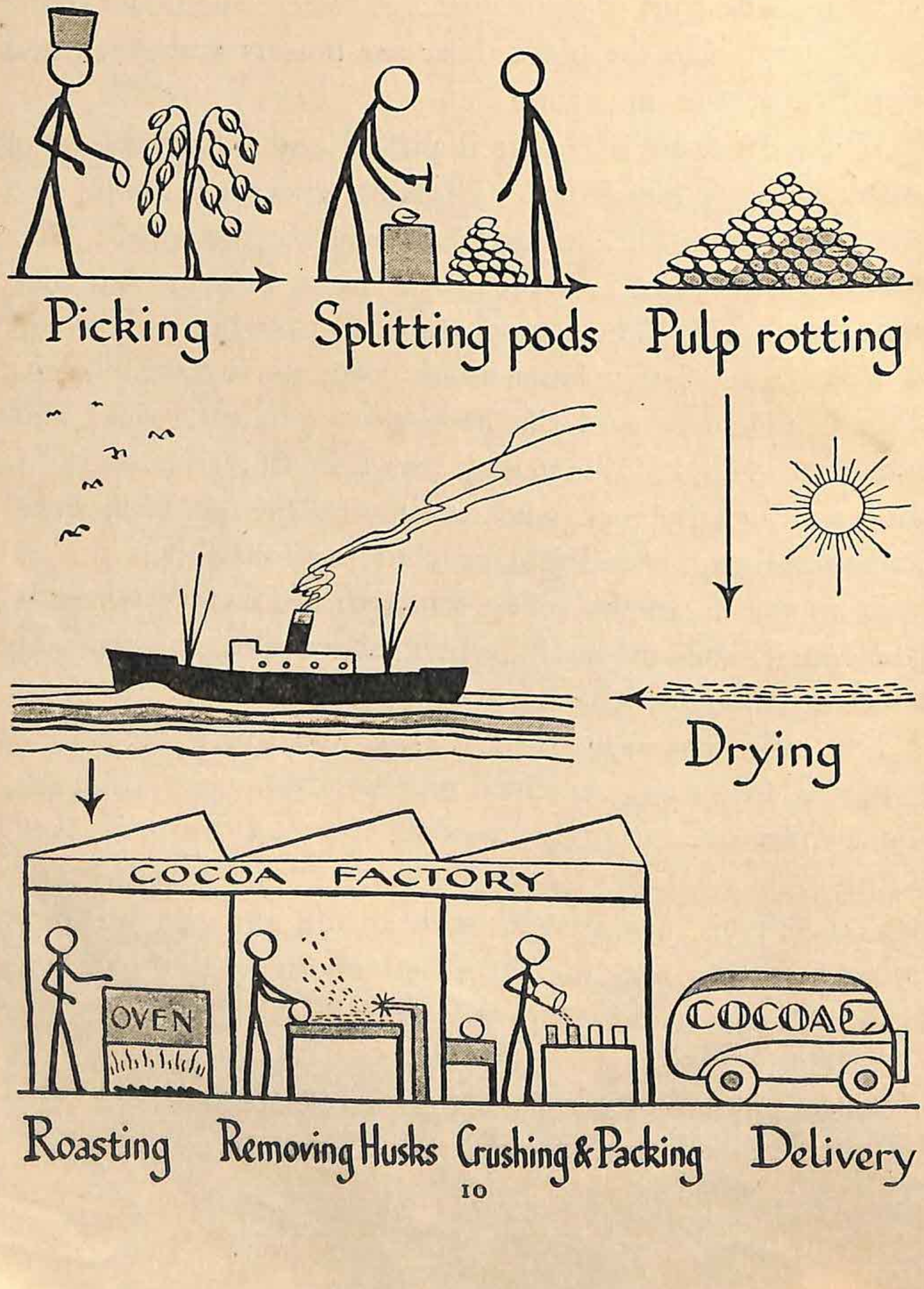
5. From Cacao Tree to Cocoa Cup



5. FROM CACAO TREE TO COCOA CUP

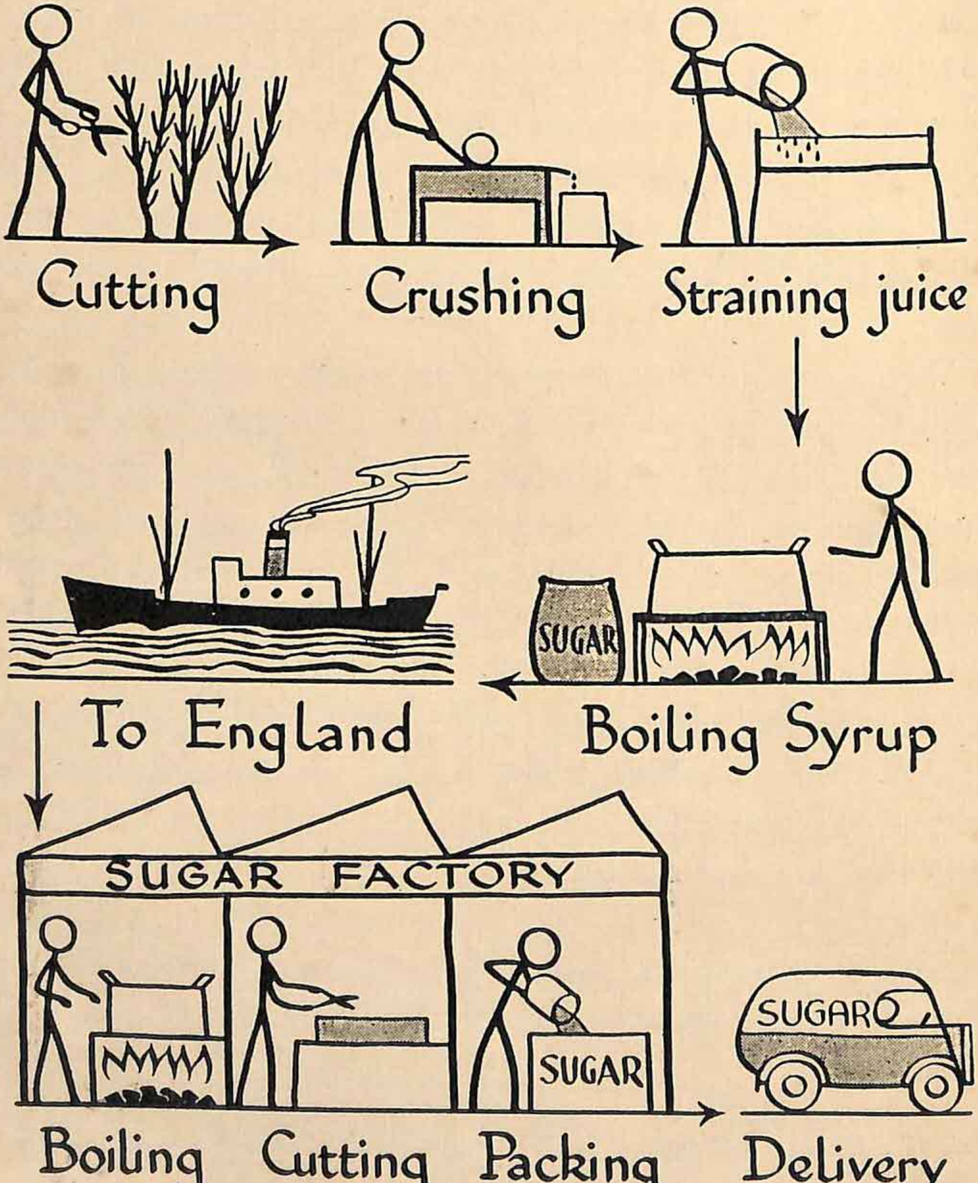
The cacao tree has fat, round pods on it that the natives cut down and put into a basket that they usually carry on their heads. The baskets are emptied on to a pile, and other natives quickly split open the tough shell of the pod and throw the beans that are inside on to another pile. There are twenty to forty beans in the juicy flesh of each pod. The pile is covered with large leaves until the pulp has rotted away, which it does quickly in the hot sun.

The beans are then spread out to dry, packed in sacks, and shipped to the cocoa factories in England. Here they are cleaned and sorted out. Roasting follows in a special kind of oven that will roast the beans but not burn them.

The beans have a husk and they are passed through rollers which split it off. The husks are blown away by wind from electric fans that are not strong enough to blow away the heavier kernel of the bean. The roasted kernels are crushed by rollers into a brown powder, which is the cocoa you find in the tins and packets that are now filled and can be bought at any grocer's shop.

Collect pictures of a cacao tree ; a cacao plantation.
Collect labels from cocoa tins and packets.

6. From Sugar Cane to Sugar Bowl



6. FROM SUGAR CANE TO SUGAR BOWL

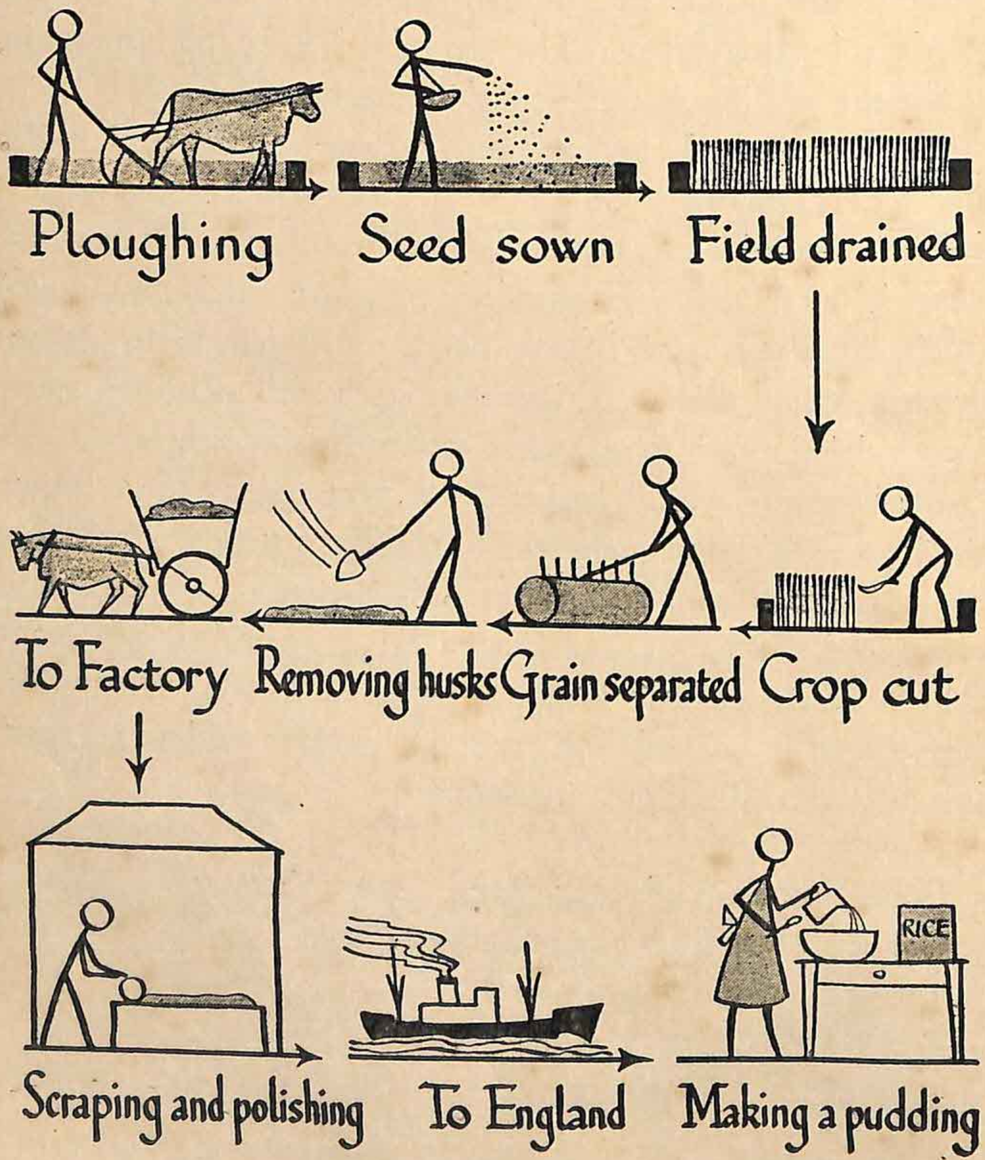
Most of the sugar we use comes from the West Indies, where the sugar cane grows taller than a man. When it is time to harvest, natives cut down the cane close to the ground with a special cutlass. The leaves are cut off and used for feeding cattle. The top joint is kept to plant again, while the rest is collected and tied into bundles.

The bundles of cane are put through heavy steel rollers like a giant mangle, which crush them and squeeze out the juice. The juice has small pieces of wood and dirt from the cane in it, so it is very carefully strained. It is now boiled up in large vats until it looks like a very thick, sticky, brown syrup. When this cools down the vat is full of brown sugar that is dried, put into sacks and sent to England by boat.

Most people would rather have white sugar than brown sugar, so when the sacks get to the factory in England the sugar is boiled up with water and cooled down until it is clean and white. It cools into a large white brick of sugar that is either cut into lumps or crushed into small crystals. The sugar is packed into sacks or packets and boxes, and is sent out to all the grocers' shops.

Collect pictures of sugar cane ; a sugar factory.
Collect labels from sugar packets.

7. From Rice Field to Rice Pudding



7. FROM RICE FIELD TO RICE PUDDING

Rice is a peculiar plant. It likes so much water that it is grown in fields of thick, juicy mud, in India and China. Before the rice is planted, a low wall of earth is built all round the field, which is then filled with water. The field is churned up to mud by ploughs pulled by water buffaloes. When the mud is thick enough the rice seed is sown, and water is kept in the field all the time it is growing.

At last the rice is nearly ripe and the water is drained off to let it ripen in the hot sun. When it is ripe the crop is cut and hung up on fences to dry. The dry plants are sometimes pulled through iron teeth fixed in a tree trunk, to pull off the grains of rice from the plant and to tear off the husk from the grain. Soon there is a pile of grain by the tree trunk. Shovelfuls of grain are thrown up into the air so that the wind will blow away the light husk, while the heavy grains of rice fall to the ground.

The buffaloes that pulled the plough are now harnessed to carts that take the rice to the factory. It does not yet look white and shining, but rough and dull like a grain of wheat. The grains are scraped and polished by a flat wheel until they are shining. Then sacks of rice are loaded on to the ship that will bring them to this country. Mother buys rice from a shop and makes a pudding.

Collect pictures of rice fields ; rice plant ; water buffaloes.

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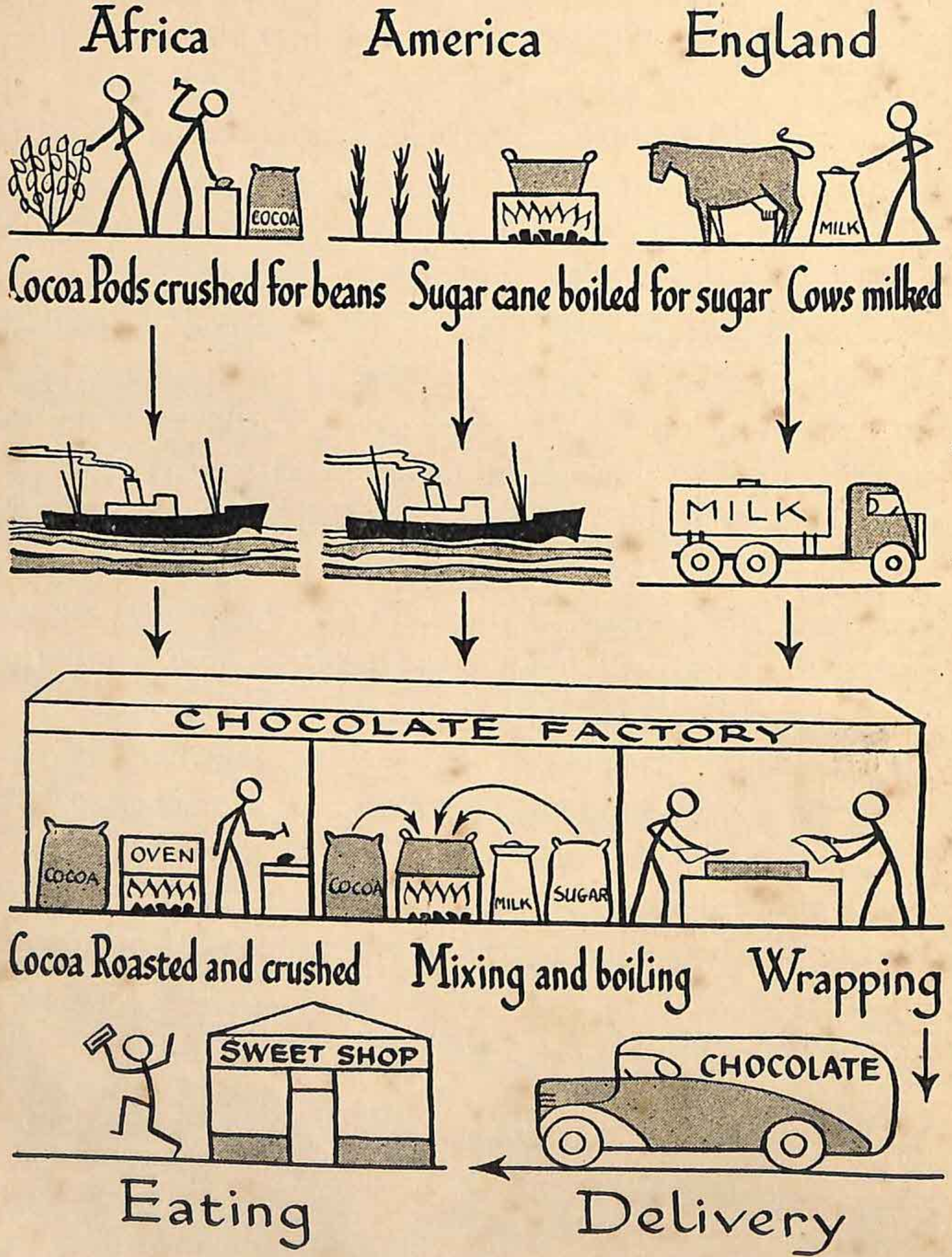
8. From Cacao Tree to Chocolate Bar



8. FROM CACAO TREE TO CHOCOLATE BAR

A bar of chocolate costs very little, and yet two of the things from which it is made have come thousands of miles. In West Africa cocoa pods grow until they are ripe. In the West Indies other men have been picking sugar cane and boiling it to get the sugar. These two things are sent to England.

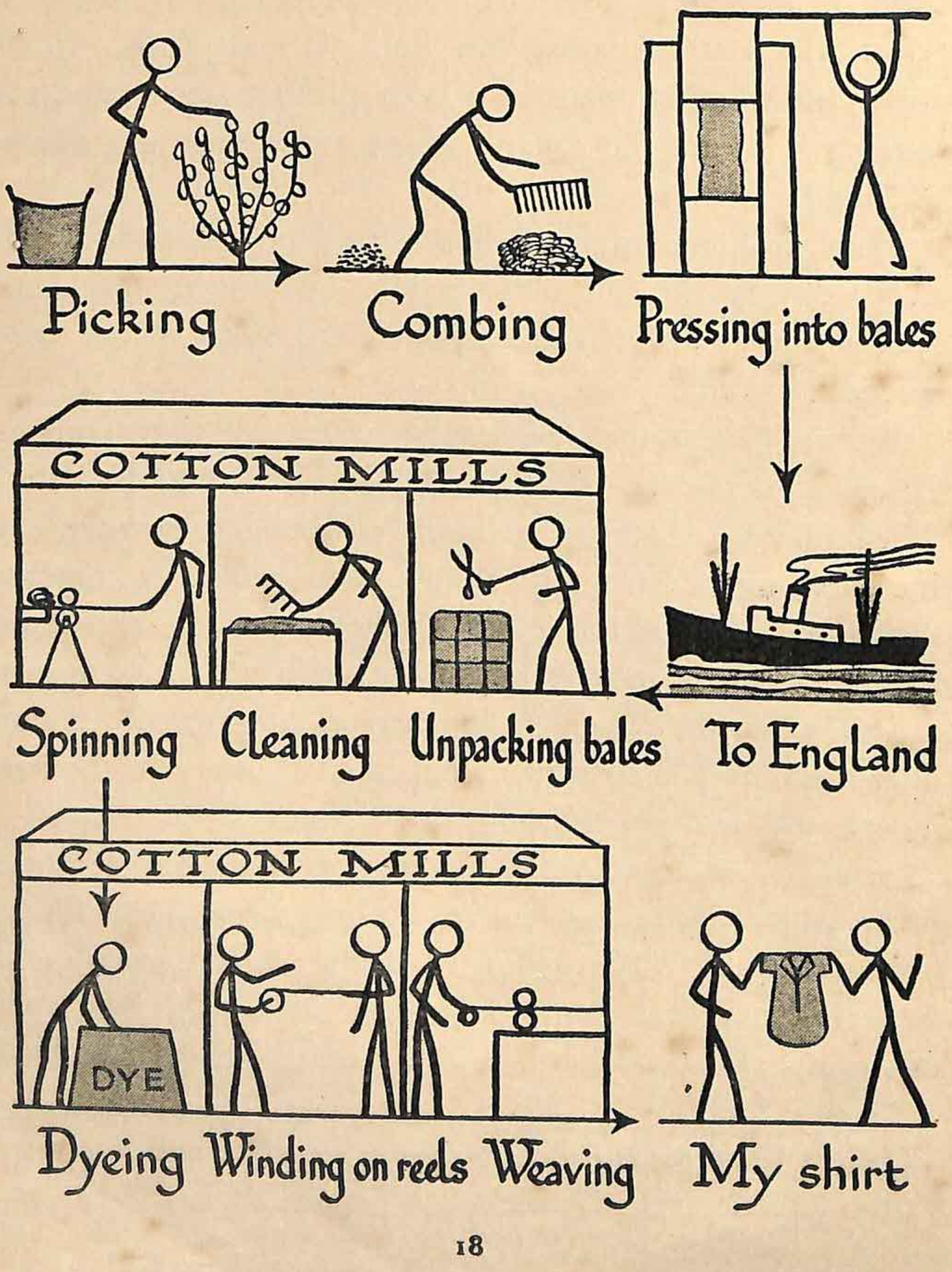
Here at home many dairy farms send gallons of milk every day to the chocolate factory by railway truck and special lorry, while rolls of paper and silver paper have already arrived.

We will go into the chocolate factory to see what happens. In some rooms the cocoa beans are cleaned and roasted. The husk is taken off and the kernel crushed into powder. In the next room there are many huge vats like immense saucepans with steam pipes to heat them. The right amounts of cocoa, milk and sugar are put in and boiled up. In a little while the chocolate is ready to be poured out into little trays, each shaped like a bar of chocolate. In the tray it cools and hardens.

Wonderful machines pick up the bar and wrap it up in silver paper and the coloured outside wrapping. Other machines quickly fill cardboard boxes with chocolate and then close and seal them. From the factory the boxes are sent to the sweet-shops by road and rail.

Collect pictures of cocoa pods; sugar cane; cows; a chocolate factory. Collect labels from chocolate.

9. From Cotton Field to Cotton Reel



9. FROM COTTON FIELD TO COTTON REEL

Nearly all the cotton that is used in the world grows on the cotton plants in America. When the cotton is ripe the seed case bursts and shows the ball of cotton wool that is inside. The fluffy ball of cotton wool is called a boll. The bolls are picked by negroes and taken to the warehouses, where the seeds are pulled out of the cotton by steel combs. The machine that does this is called a ginning machine. The seeds are kept carefully, some for planting next year, and the rest for making into winter food for cattle.

Great bundles of cotton are squeezed in giant presses until they are quite small, and then they are kept pressed tightly by having iron bands fitted round them. The bundles are called bales and are sent to England.

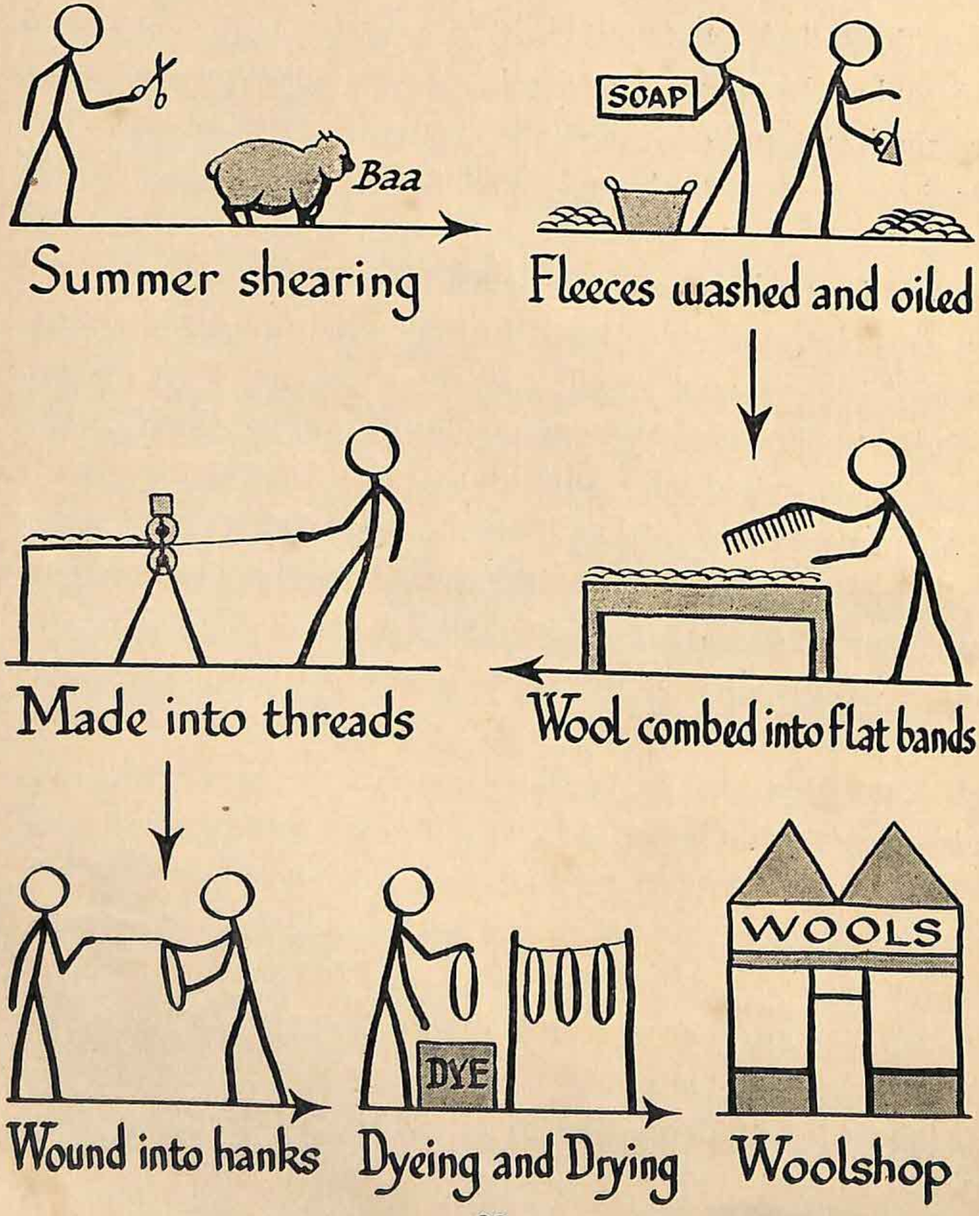
Most of the cotton that comes to England goes to cotton mills in Lancashire. The bales are unpacked in the mills and combed out in machines called carding machines to get rid of any dirt. The cotton is now spun into thread in the spinning machine that twists the short pieces of cotton into one long thread. These threads are dyed whatever colour is wanted and, after being dried, are wound on to reels.

Part of the cotton is sold on reels for Mother to use when she is sewing, but most of it is woven into cloth.

Collect pictures of a cotton plant ; cotton fields ; a bale of cotton ; cotton mills.

Make a list of all the clothes we wear that are made from cotton.

10. From Sheep to Wool Shop



10. FROM SHEEP TO WOOL SHOP

In the summer the farmer collects all his sheep into one field so that they can have their thick winter coats cut off. He does not use scissors but a pair of clippers, often worked by electricity or a petrol engine.

The sheep's coat is called a fleece and is usually very dirty. The fleeces are collected up, churned round in tubs of soapy water until they are clean, and then oiled.

The fleeces have to be combed out into a flat band through special rollers that look like a mangle, with nails sticking out all over them. The band is drawn out and twisted into a long woollen thread. If you get a piece of wool you can soon untwist it again. The woollen threads are far too thick to be wound on to a reel like cotton or silk, so they are wound into hanks or skeins.

The wool is still white, so now the skeins are dipped into huge vats of dye that colour them any colour you can think of. Then they are hung up to dry. Can you imagine many clothes lines with hanks of all colours hanging up to dry?

After they are dry they are put into paper parcels and boxes and sent to wool shops all over the country.

Collect pictures of sheep shearing; wool factories; dye works.

Collect labels from hanks of wool.

Make a list of the clothes that are made from wool.

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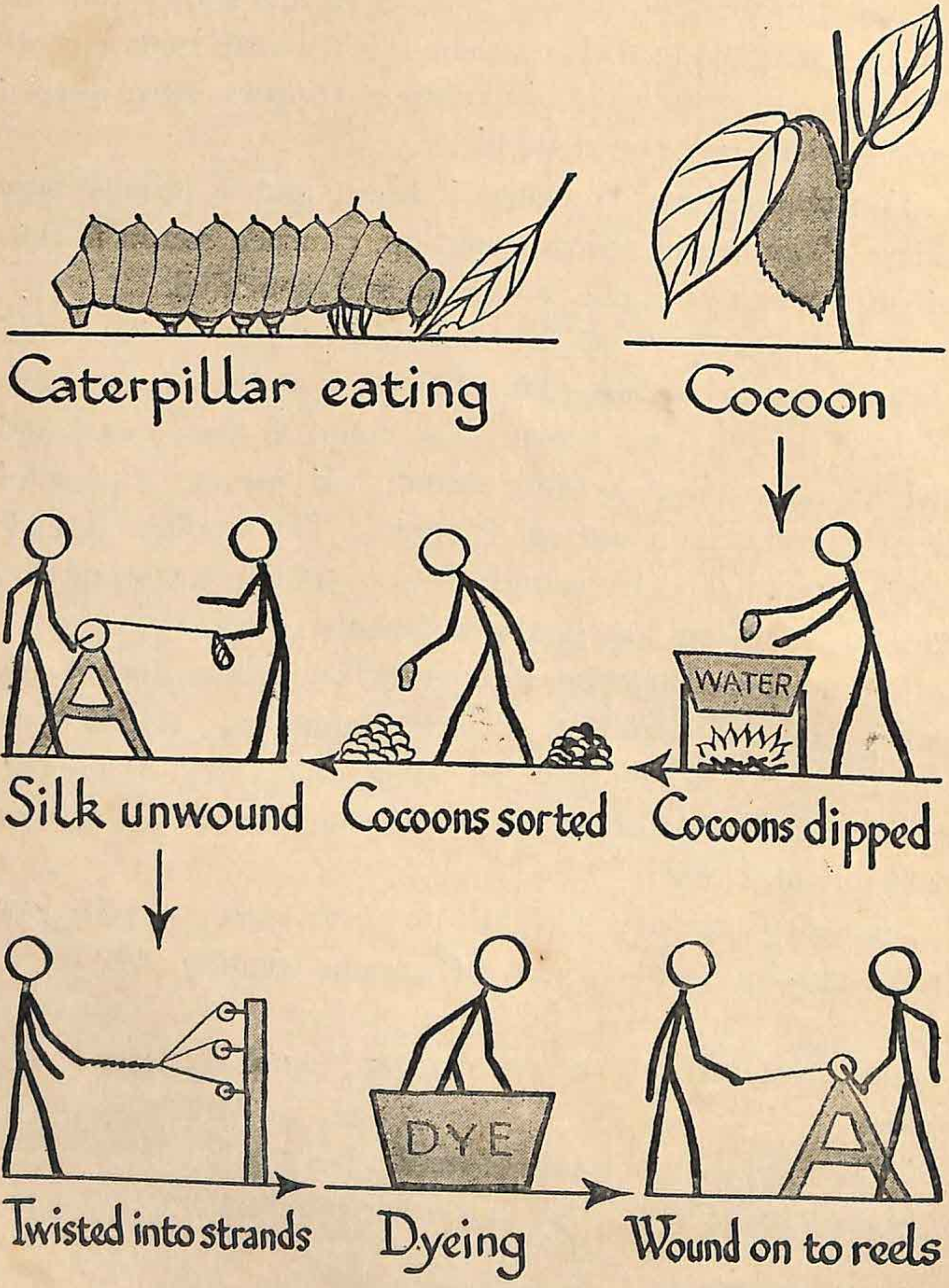
11. From Silk Worm to Reel of Silk



11. FROM SILK WORM TO REEL OF SILK

We have seen how the sheep's coat and part of the cotton plant are useful for making clothes. The silk worm also gives us something useful, but in quite a different way.

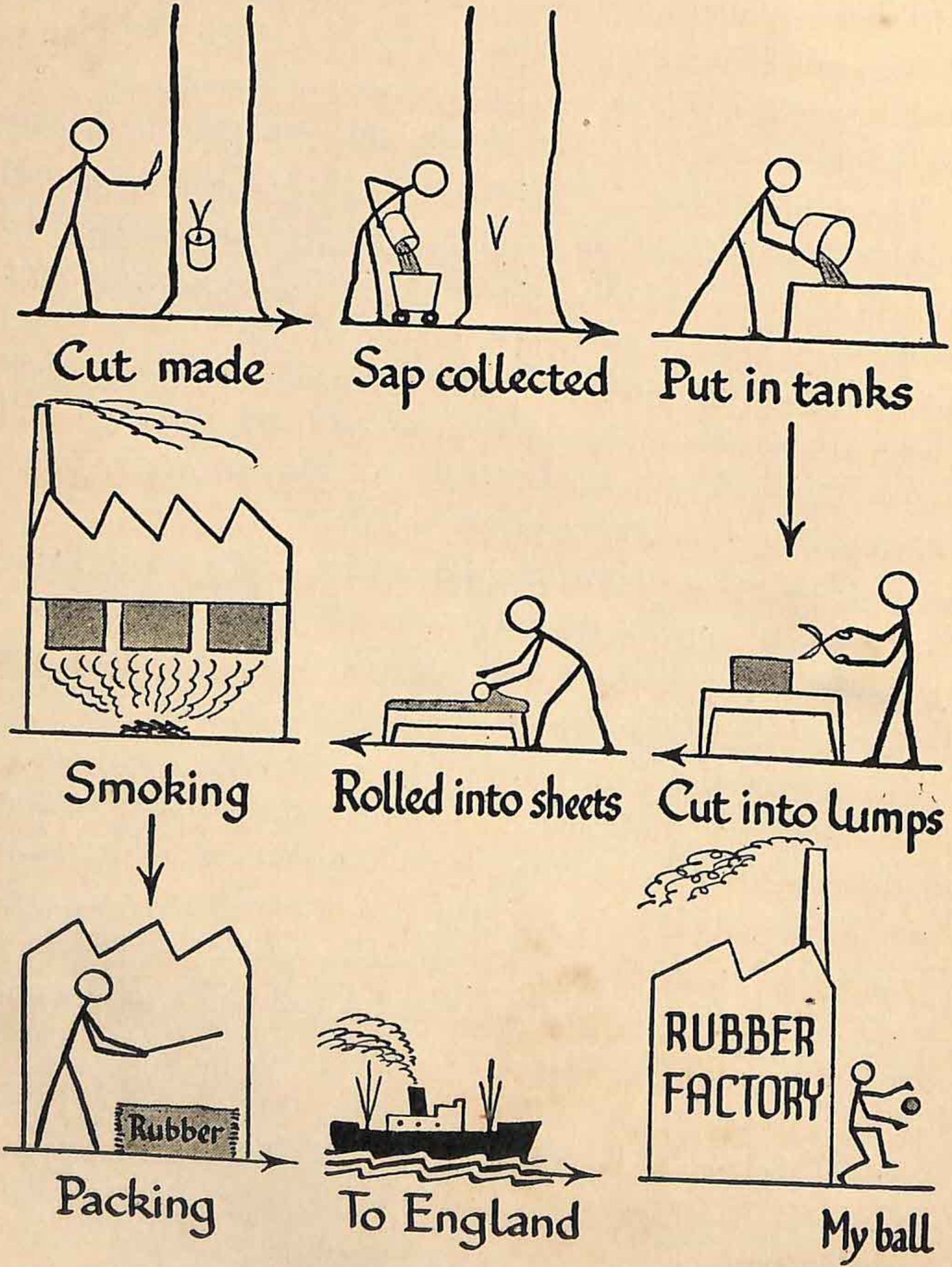
You have all seen caterpillars, and you may have seen them spin a cocoon. The caterpillar of the silk moth spends the early part of his life feeding on mulberry leaves until he is full grown and quite fat. Then he begins to get sleepy, and he chooses a nice spot under the leaves and wraps himself in yards of silk in his cocoon. Once inside he turns into a chrysalis. The silken cocoons are collected and sorted into colours, and are then put into hot water, which immediately kills the chrysalises inside.

The hot water loosens the silk, and once the end is found it is easy to unwind the silk on to a reel. It is all in one piece and finer than the thinnest hair. It is far too thin to use, so several strands of silk are twisted together to make thicker strands. These are dyed and wound on to reels. Some are used to make silk cloth for your mother's dresses.

Real silk cloth is quite expensive because it takes many caterpillars to make enough silk to weave a yard of silk material. Clever men have found out how to make silk in a factory without silk worms. This silk is called artificial silk, but it is not as strong and good as real silk.

Collect pictures of a silk worm ; a silk moth.

12. From Rubber Tree to Sorbo Ball



12. FROM RUBBER TREE TO SORBO BALL

Rubber is made from the sap of a rubber tree that grows in hot countries. A cut is made in the bark of the tree with a special knife, and a small tin cup is fitted underneath. The sap of the tree runs out and slowly fills the small cup.

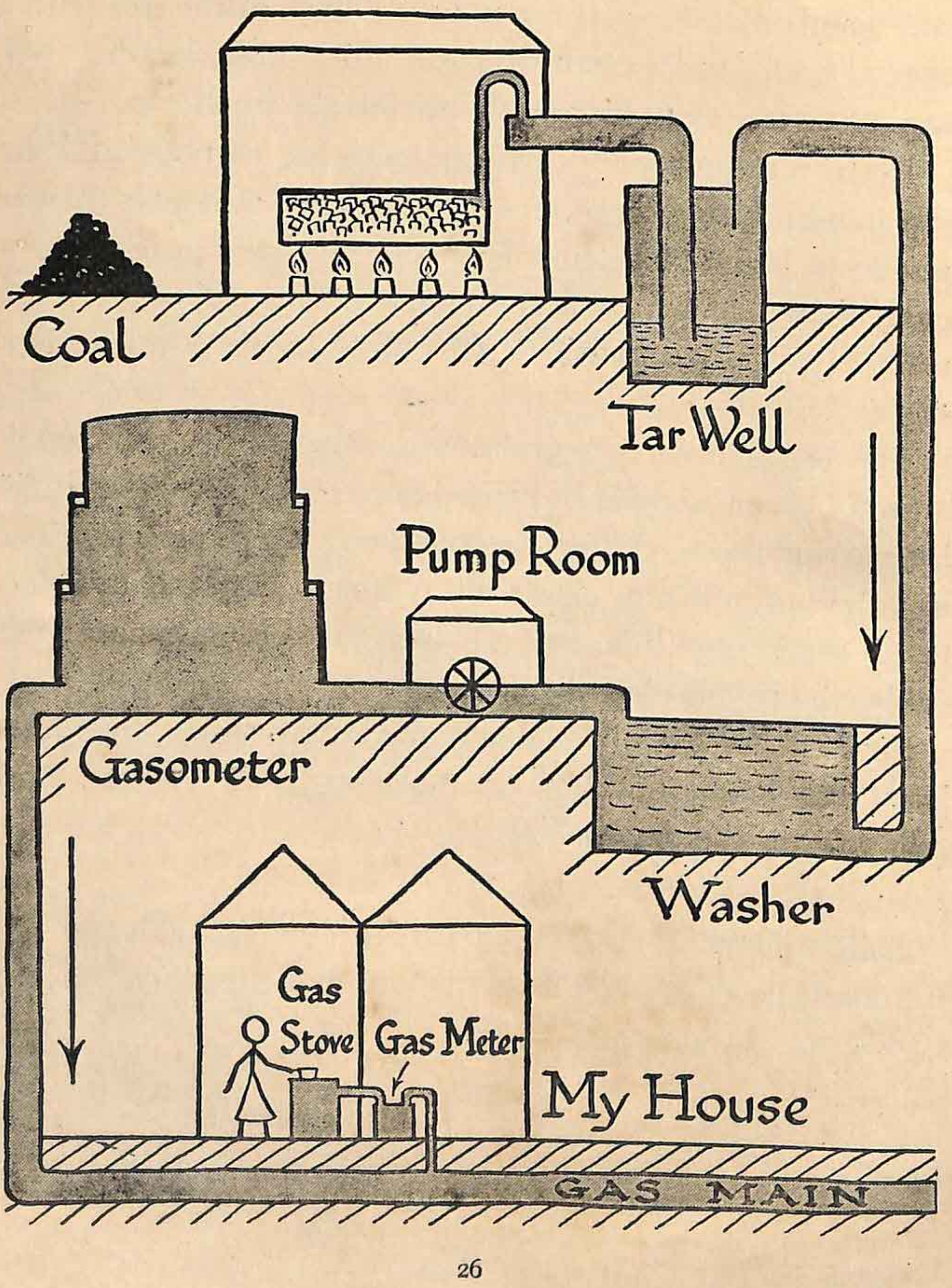
Every morning quite early the cups are emptied and the sap poured into a large tank, with a little acid like vinegar put in to help it harden. Soon the sap has hardened to a great mass like a huge white cheese. It is still soft enough to be cut into lumps which are rolled by huge rollers into sheets.

The sheets of rubber are hung in sheds to dry, and often a fire of green wood is lit on the floor to help dry the sheets by smoking them. When dry, the sheets are pressed together in bales and put into chests to be sent to England by boat, to be made into hundreds of different things, such as the rubber balls you play with.

Pure rubber from the rubber tree is expensive. Scientists have also found out how to make artificial rubber, and many factories now use this.

Collect pictures of a rubber tree ; rubber tree with cup.
Make a list of all the things that are made from rubber.

13. From Gasworks to Gas-stove



13. FROM GAS WORKS TO GAS STOVE

Next time you go past the gas works, look for a great heap of coal used to make the gas to boil your kettle and cook the dinner. Let us go inside the gas works and find out how this is done.

The coal is put into an oven, shaped like a long tube with a door on one end and a pipe leading from the other. The door is shut tightly and the coal is heated by a gas burner underneath. Soon it begins to bubble and the thick, tarry gas comes off just as you see it in your fireplace when you put on a fresh shovel of coal.

The gas goes up the pipe at the end of the oven, but it is so dirty that it has to be cleaned. First it goes bubbling through a tank of water that takes all the tar out of it. This tar collects at the bottom of the tank and is sold to put on the roads. But the gas is still a dirty colour, so it goes through some long, flat tanks full of a special chemical. It is then pumped up into the round, painted tank by the gas works called a gasometer.

It comes from the gas works along the big iron gas main, and through a smaller pipe into your gas meter. As it goes through the meter it turns the little clocks that show how much gas has been used.

Collect pictures of gas works ; gas stoves ; geysers ; gas fires ; gas rings.

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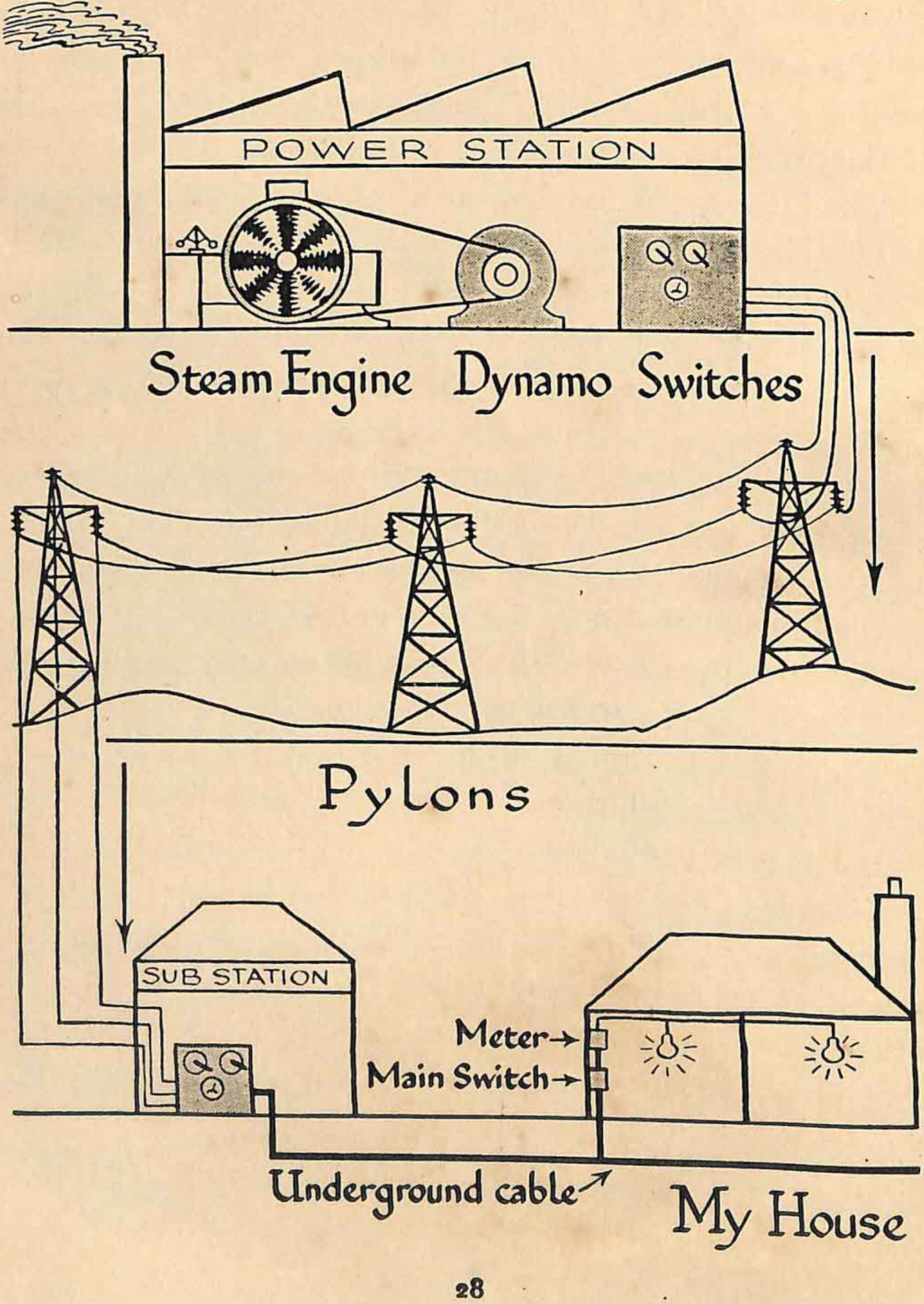
14. From Power Station to Electric Light



14. FROM POWER STATION TO ELECTRIC LIGHT

Most homes today use electricity. It is made in a special factory that we call a power station. A power station is the cleanest, neatest, quietest factory that you can find. All that you can see is a number of humming machines and dozens of huge switches and clock faces.

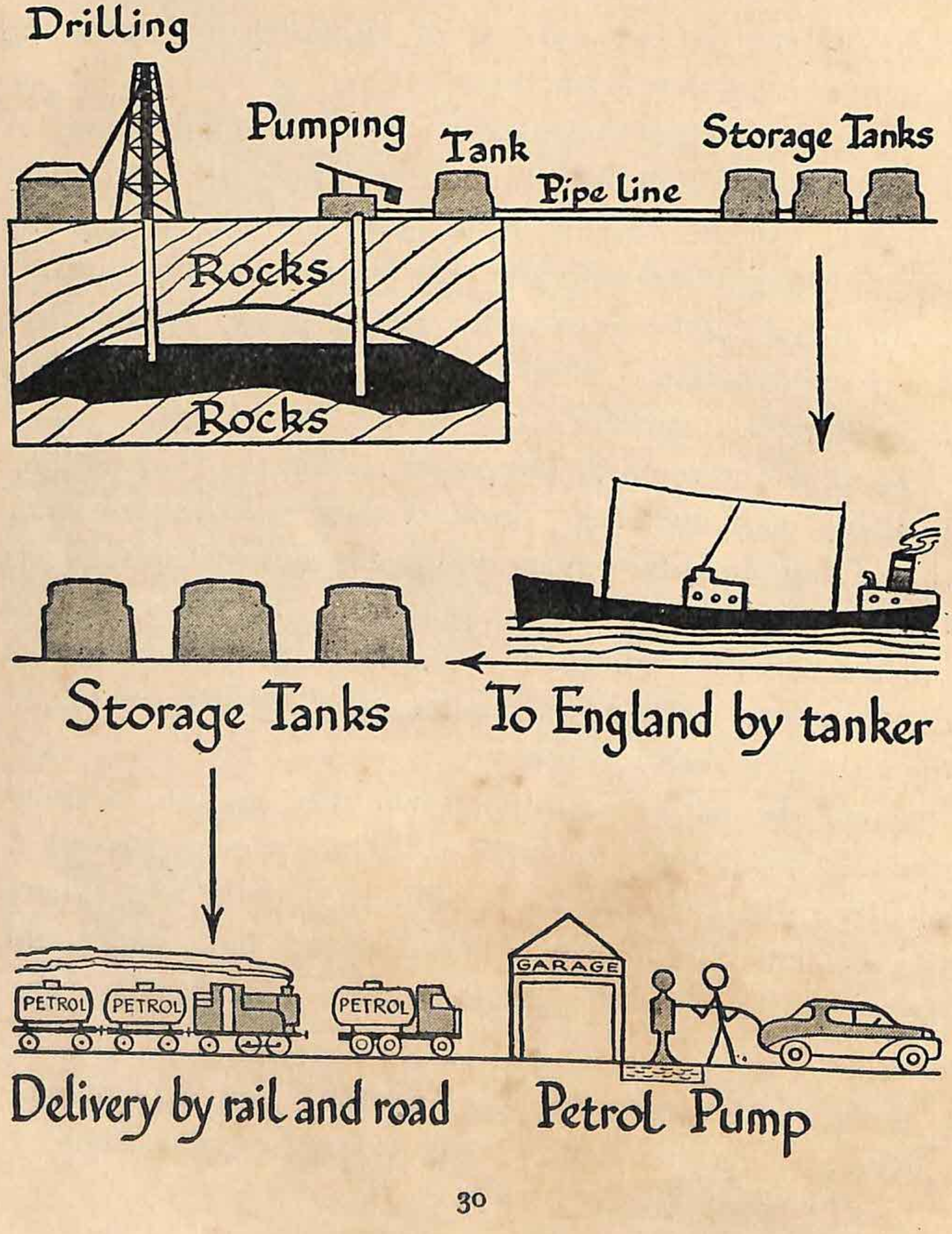
The machine that makes electricity is called a dynamo. A dynamo looks rather like a round, black box with a rod sticking out. All the wire that is inside is covered up to stop any one touching it and getting an electric shock. The dynamo has a steam engine to drive it. At the power station there are many dynamos. Some are not working during the day, but as soon as it gets dark they will all be working.

There is one room at the power station that has nothing in it but giant switches. Some of these switches are taller than a man and give out sparks like fireworks when they are turned off. The electricity goes from the power station miles across the country on wires held up on steel towers called pylons. All power stations in England are joined together by wires on pylons.

When the wires reach the town they go into a small building to join them up to the cables under every street. A smaller cable joins the main cable to your house. There you will find the main switch and electric light meter and the ends of the wires that go all over your house.

Collect pictures of a dynamo ; a power station ; a pylon.
Name all the things in your house that use electricity.

15. From Oil-well to Petrol Tank



15. FROM OIL-WELL TO PETROL TANK

Let us find out about the long journey petrol has before it gets to a garage. Far away in Arabia and deep down under the earth men have found the oil that is used to make petrol. A deep hole is made until it reaches the oil. A wooden tower is built and a drill grinds down into the rock. As the hole gets deeper pipes are screwed together and pushed down the hole in the same way as the sweep puts his rods together and pushes them up the chimney.

At last the hole reaches the oil, which rushes up like a giant fountain. Quickly the workmen screw another pipe on to the end so that the oil goes into tanks. After a while the oil has to be pumped up.

The oil is boiled to get the petrol and paraffin out of it and then stored in tanks to wait for a ship. These ships are called oil tankers. The ship's engine and funnel are always at the back so that no sparks can be blown on to the tanks.

When the ship gets to England the petrol is pumped into tanks until it is wanted. It is taken to garages by railway trucks and petrol lorries. In a little while a motorist will stop and buy some petrol.

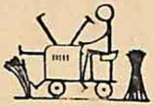
Collect pictures of an oil well ; an oil tanker ; a petrol lorry ; a railway truck ; petrol pumps ; a garage.

Collect the advertisements of the different petrol companies.

16. QUESTIONS

Now would you like to see if you can answer some questions? You will find all the answers in the pictures opposite the chapters.

1. What are these men doing?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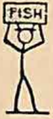

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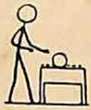
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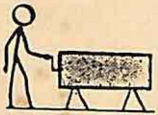
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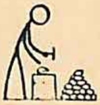
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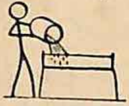
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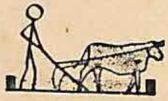
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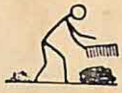
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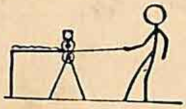
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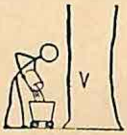
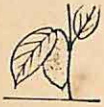
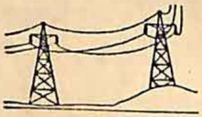
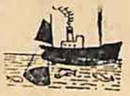

(j)

2. What are these called?


(a)


(b)

3. What kinds of ships are these?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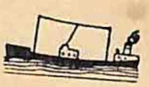
(b)

4. What three things are used to make chocolate?

Here are the answers. How many did you get right?

1. (a) Reaping. (b) Carrying fish boxes in Billingsgate Market. (c) Rolling tea. (d) Removing pulp of coffee bean. (e) Splitting cocoa pods. (f) Straining juice of sugar cane. (g) Ploughing rice field. (h) Combing cotton boles. (i) Making threads of wool. (j) Collecting sap of rubber tree.

2. (a) Cocoon. (b) Pylons. 3. (a) Drifter or trawler. (b) Tanker. 4. Cocoa, sugar and milk.

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THINGS WE ALL KNOW

by

R. J. CANDY

32 pp. each. Black-and-white illustrations

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BOOK 2

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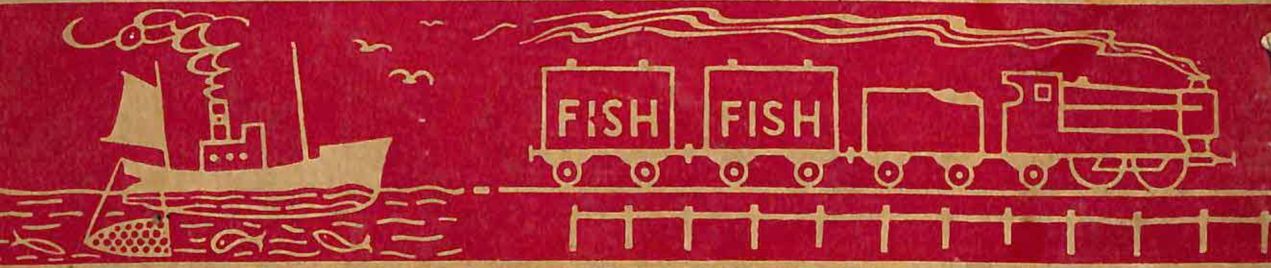

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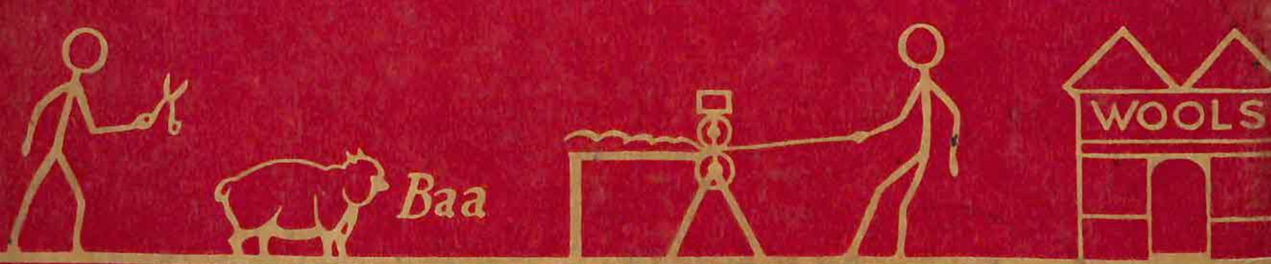

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